Health Hints

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Cervical Cancer
Screening & prevention

"Cancer is a disease that happens when body cells don't work right. The cells divide really fast and grow out of control. These extra cells form a tumor."[1] "Cancer is always named for the part of the body where it starts, even if it spreads to other parts of the body later."[2] "Cervical cancer is cancer in the cervix, the lower, narrow part of the uterus (womb). The uterus is the hollow, pear-shaped organ where a baby grows during a woman's pregnancy. The cervix forms a canal that opens into the vagina (birth canal), which leads to the outside of the body."[1]

"Cervical cancer is one of the most common cancers to affect a woman's reproductive organs."[3] Every year in the United States, about 11,000 women learn they have invasive cervical cancer,[4] and about 4,000 of them die from it.[5] It occurs most often in women aged 30 years and older,[2] but most of these women are younger than 55.[4] "The tragedy of cervical cancer is that it often strikes when a woman is still young. She may be trying to raise her family, or maybe she hasn't had children yet. Cervical cancer treatment may make future fertility impossible."[6]

The good news is, cervical cancer is often preventable and curable if detected early.[7] Important strategies to reduce the risk of cervical cancer include:

- preventing infection by the human papilloma virus and
- screening for abnormal, precancerous cell development.[7]

Who gets cervical cancer?
Risk factors

"All women are at risk for cervical cancer,"[2] but there are some factors that *increase* your risk:

- HPV – "The most important risk factor for cervical cancer is infection by the human papilloma virus (HPV)."[8] "Most cases of cervical cancer are caused by the human papilloma virus. HPV is a virus that is passed from person to person through genital contact, most often during vaginal and anal sex."[1] "Still, intercourse doesn't have to take place for HPV

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to spread from one person to another. All that is needed is for there to be skin-to-skin contact with an area of the body infected with HPV."[8] Most HPV infections occur without any symptoms and go away without any treatment over the course of a few years;[9] a woman's immune system typically prevents the virus from doing harm.[3] Some HPV viruses may cause visible genital warts (papillomas[10]) that can often be removed. However, HPV infection sometimes persists for many years[9] before it eventually converts some cells on the surface of the cervix into cancer cells.[3] There are more than 100 types of HPV. Most are harmless, but about 30 types put you at risk for cancer.[11] Note: In addition to cervical cancer, studies also suggest that HPVs may play a role in some cancers of the anus,

vulva, vagina, and penile cancer (cancer of the penis).[5]

Other factors that may increase your risk for cervical cancer include:

- tobacco use,
- family history of cervical cancer,
- sexual history,
- lack of regular Pap tests,
- poverty,
- weakened immune system,
- high number of full-term pregnancies or younger than 17 at first full-term pregnancy,
- long-term use of oral contraceptives, and
- Diethylstibestrol (DES).

Can Cervical Cancer Be Prevented?

Protective factors

The good news is that cervical cancer can be prevented and risks reduced by:

- preventing HPV infection and
- screening for abnormal, precancerous cell development

Preventing HPV Infection

HPV may be prevented by the following:

- **Avoiding sexual activity.** HPV infection of the cervix is the most common cause of cervical cancer. Avoiding sexual activity decreases the risk of HPV infection.[12]
- **Using barrier protection or spermicidal gels.** Some methods used to prevent sexually transmitted diseases (STDs) decrease the risk of HPV infection. The use of barrier methods of birth control (such as a condom or gel that kills sperm) help protect against HPV infection.[12] Note that correct use of latex condoms greatly reduces – but does NOT eliminate – the risk of catching or spreading HPV.[11]
- **Getting an HPV vaccine.**[12] The HPV vaccines, Gardasil and Ceravix, have been approved by the U.S. Food and Drug Administration (FDA). Gardasil was approved for use in 2006 and prevents infection from four types of HPV.

Two of the types targeted by the vaccine (HPV-16 and HPV-18) are responsible for about 70 percent of the cases of cervical cancer worldwide. The other two HPV types (HPV-6 and HPV-11) cause approximately 90 percent of the cases of genital warts.[13] Ceravix was approved in 2009 and prevents infection from the two types of HPV responsible for 70 percent of cases of cervical cancer, HPV-16 and HPV-18.[8]

"Both vaccines require three injections over a six-month period. Side effects are usually mild. The most common one is short-term redness, swelling, and soreness at the injection site. Rarely, a young woman will faint shortly after the vaccine injection. Cervarix is approved for use in girls and young women ages 10 to 25 years, while Gardasil is approved for those 9 to 26 years old."[8] Gardasil is also approved in males to prevent genital warts.[8]

"Both Gardasil and Cervarix only work to prevent HPV infection – they will not treat an infection that is already there. That is why, to be most effective, the HPV vaccine should be given before a person starts having sex.

In 2009, the Federal Advisory Committee on Immunization Practices (ACIP) published recommendations for HPV vaccination. It recommended that females aged 11 to 12 routinely receive HPV vaccination with the full series of three shots. Females as young as age 9 may also receive the vaccine at the discretion of their doctors. ACIP also recommended women ages 13 to 26 who have not yet been vaccinated get "catch-up" vaccinations. For the prevention of cervical cancers and pre-cancers, either of the two vaccines, Cervarix or Gardasil, may be used. For the prevention of cervical cancers and genital warts, ACIP recommends the use of Gardasil.

These vaccines should be given with caution to anyone with severe allergies. Women with a severe allergy to latex should not take the Cervarix vaccine, and those with a severe allergy to yeast should not receive Gardasil."[8]

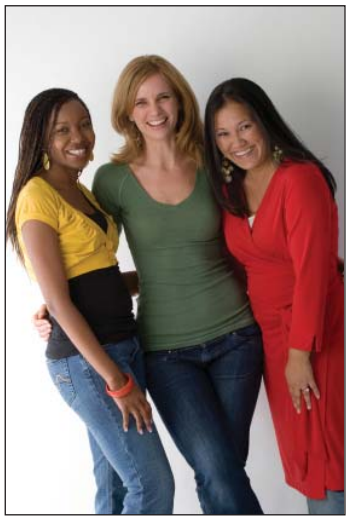
Women who have been vaccinated against HPVs still need to be screened regularly with Pap tests.[14] "Because these vaccines do not protect against all HPV types that can cause cancer, Pap tests continue to be essential to detect cervical cancers and precancerous changes. In addition, Pap tests are critically important for women who have not been vaccinated or who are already infected with HPV."[10]

Screening for Abnormal, Precancerous Cell Development

"Studies show that screening for cervical cancer helps decrease the number of deaths from the disease."[15] "Screening is looking for cancer before a person has any symptoms. This can help find cancer at an early stage. When abnormal tissue or cancer is found early, it may be easier to treat. By the time symptoms appear, cancer may have begun to spread."[15] During a doctor's visit, your clinician will likely screen using a Pap test. If results are "positive," indicating any abnormality, your doctor may schedule a repeat Pap test and/or an HPV DNA test.

Pap Test

"Widespread use of the Pap [Papanicolaou] test, which detects cervical cancer and pre-cancerous lesions, has made cervical cancer one of the most preventable cancers."[13] Regular screenings with a Pap test are critical because they can find abnormal cells and use procedures to remove them before they can develop into cervical cancer. In fact, "6 of 10 cervical cancers occur in women who have never received a Pap test or have not been tested in the past five years."[2]



- **What is a Pap test?** "A Pap test is a procedure to collect cells from the surface of the cervix and vagina."[15]
- **What happens during a Pap test?** "A Pap test can be done in a doctor's office, a clinic, or a hospital. While a woman lies on an exam table, the clinician inserts a speculum into her vagina to widen it."[14] "A piece of cotton, a brush, or a small wooden stick is used to gently scrape cells from the cervix and vagina."[15]

  This sample (or smear) is placed on a glass slide and preserved with a fixative, or is rinsed in a vial of fixative, and is sent to a laboratory for examination.[14] "The cells are viewed under a microscope to find out if they are abnormal."[15]

  Your doctor or nurse will also do a pelvic exam (pressing on your lower abdomen to feel for abnormalities) to check the uterus, ovaries, and other organs.[16]
- **How often should a woman have a Pap test?** "Women should talk with their clinician about when and how often they should have a Pap test. Current general guidelines recommend that women have a Pap test at least once every three years, beginning about three years after they begin to have sexual intercourse, but no later than age 21. Experts recommend waiting about three years after the start of sexual activity to avoid overtreatment for common, temporary abnormal changes. It is safe to wait three years, because cervical cancer usually develops slowly. Cervical cancer is extremely rare in women under age 25.[14] "Regular screening of women between the ages of 25 and 60 years with the Pap test decreases their chance of dying from cervical cancer."[15]

  "Women ages 65 to 70 who have had at least three normal Pap tests and no abnormal Pap tests in the last 10 years may decide, after talking with their clinician, to stop having Pap tests. Women who have had a hysterectomy (surgery to remove the uterus and cervix) do not need to have a Pap test, unless the surgery was done as a treatment for precancer or cancer."[14]

> "Studies show that screening for cervical cancer helps decrease the number of deaths from the disease."[15]

- **How to get ready for the Pap test.** "A woman should have this test when she is not menstruating; the best time is between 10 and 20 days after the first day of the last menstrual period. If her period starts on the day of the test, she should call the doctor right away and reschedule the appointment."[14] For about two days before a Pap test, do not:
  - have sex;
  - douche;
  - use tampons;
  - use birth control that is put into the vagina, like foam, cream, or jelly;
  - use any medicine that is put into the vagina;
  - use a vaginal lubrication;
  - use feminine deodorant sprays or powders;
  - swim; or
  - take a tub bath (except as directed by a physician).[17]

  These may cause unclear results or wash away or hide abnormal cells. After the test, she can go back to her normal activities and return to work right away.[14]
- **What about cost?** Most insurance plans will pay for your regular Pap test. Ask your

insurance provider which tests are included in your plan.[16] Find out how often Medicare covers Pap tests and pelvic exams here.

- **What if the test is "positive"?** If a Pap test is "positive," your doctor will likely recommend a repeat Pap test and/or an HPV DNA test. After the test, learn how to make sense of your Pap test results.

HPV DNA Test

In addition to the Pap test alone, the FDA has approved the HPV DNA test to be used in combination with the Pap test to screen for cervical cancer in women over 30.[8] "Like the Pap test, the HPV DNA test involves collecting cells from the cervix for lab testing."[3]The HPV DNA test can identify at least 13 of the high-risk types of HPV associated with the development of cervical cancer[3, 9] even before there are any conclusive visible changes to the cervical cells.[9] The HPV DNA test does NOT replace the Pap test,[8] since the Pap test can still detect abnormalities in the cells and the HPV DNA test cannot identify all of the types of HPV that are associated with cervical cancer. Note that the HPV DNA test is not recommended for women under 30. Women in their 20s who are sexually active are much more likely to have an HPV infection that will go away on its own. HPV DNA tests in this age group may lead to unnecessary treatment.[8, 18]

The HPV DNA test can also be used for women of any age who have an abnormal ("positive") Pap test result. "After certain positive Pap test results, an HPV DNA test may be done to find out if the HPV infection that is causing the abnormal cells is one that is linked to cervical cancer."[15] If either your Pap or HPV DNA test are "positive," further diagnostic procedures and treatments may be required.

Talk with your doctor about getting appropriate screenings and vaccinations against cervical cancer. "Cervical cancer is highly preventable in most Western countries because screening tests and a vaccine to prevent HPV infections are available. When cervical cancer is found early, it is highly treatable and associated with long survival and good quality of life."[2]

Cervical Cancer Symptoms Don't ignore them

"In its early stages, cervical cancer or early cervical pre-cancerous abnormalities usually have no signs or symptoms. That's why it's important to get Pap tests regularly."[19] "Cervical cancer that is caught early can usually be cured. If the cancer is caught very early, you still may be able to have children after treatment."[20]

"Symptoms usually do not show up until the cancer becomes invasive and grows into nearby tissue. The most common symptoms at this stage are:

- unusual discharge from the vagina,
- blood spots or light bleeding when you're not having your period,
- bleeding after menopause, and
- bleeding or pain during sex.

Additional symptoms may occur, which include:

- anemia because of abnormal vaginal bleeding;
- ongoing pelvic, leg, or back pain;
- urinary problems because of blockage of a kidney or ureter;
- bleeding from the rectum or bladder;
- weight loss."

"If you have any of these symptoms, speak to your healthcare provider right away. Don't ignore the symptoms. Ignoring the symptoms can give the cancer time to grow into a more advanced stage and lower your chance for effective treatment."

Just because you have these symptoms doesn't mean you have cervical cancer. You can have these symptoms for other reasons. But it is important to check with your healthcare provider to find out what's causing them. Finding cervical cancer early means you have a better chance of successful treatment."[19]

To view the references used in this newsletter, go to: http://fcs.tamu.edu/health/healthhints/2010/jul/ref.php

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Factors that Increase Your Risk for Cervical Cancer

The most important risk factor for cervical cancer is the human papilloma virus (HPV).[1] ""Most cases of cervical cancer are caused by the human papillomavirus."[2] Other factors, however, can increase your risk of getting cervical cancer. These factors include:

- **Tobacco use.** "Smoking cigarettes and breathing in secondhand smoke increases the risk of cervical cancer."[3] "Women who smoke are about twice as likely as non-smokers to get cervical cancer. Smoking exposes the body to many cancer-causing chemicals that affect organs other than the lungs. These harmful substances are absorbed through the lungs and carried in the bloodstream throughout the body. Tobacco by-products have been found in the cervical mucus of women who smoke. Researchers believe that these substances damage the DNA of cervix cells and may contribute to the development of cervical cancer."[1]

- **Family history of cervical cancer.** "Cervical cancer may run in some families. If your mother or sister had cervical cancer, your chances of developing the disease are 2 to 3 times higher than if no one in the family had it. Some researchers suspect that some instances of this familial tendency are caused by an inherited condition that makes some women less able to fight off HPV infection than others."
- **Sexual history.** "Women who have had many sexual partners have a higher risk of developing cervical cancer. Also, a woman who has had sex with a man who has had many sexual partners may be at higher risk of developing cervical cancer. In both cases, the risk of developing cervical cancer is higher because these women have a higher risk of HPV infection."[4]
- **Lack of regular Pap tests.** "Cervical cancer is more common among women who don't have regular Pap tests. The Pap test helps doctors find abnormal cells. Removing or killing the abnormal cells usually prevents cervical cancer."[4]
- **Poverty.** "Poverty is also a risk factor for cervical cancer. Many women with low incomes do not have ready access to adequate health-care services, including Pap tests. This means they may not get screened or treated for cervical pre-cancers."
- **Weakened immune system** (the body's natural defense system). Women whose immune systems are suppressed, either by medication or medical conditions like HIV or AIDS, are at higher risk for HPV infection.[4] A cervical pre-cancer might develop into an invasive cancer faster than it would in a person with a normal, healthy immune system.[1]
- **High number of full-term pregnancies or young at first full-term pregnancy.** "Women who have had seven or more full-term pregnancies may have an increased risk of cervical cancer."[3] Women who were younger than 17 at first full-term pregnancy are also two times more likely to get cervical cancer later in life than those who were 25 years or older.[1] Reasons for these risks are not fully understood but could involve hormonal or immune system changes during pregnancy.[1]

- **Long-term use of oral contraceptives.** "Women who have used oral contraceptives ("the Pill") for five years or more have a greater risk of cervical cancer than women who have never used oral contraceptives. The risk is higher after 10 years of use."[3]
- **DES.** Diethylstibestrol (DES) is a hormonal drug that was given to some women to prevent miscarriage between 1940 and 1971. Women whose mothers took DES (when pregnant with them) develop cervical cancer more often than would normally be expected; however, this occurs very rarely.[1]

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Further Procedures for Cervical Cell Abnormalities... And invasive cervical cancer

If the Pap test shows an unclear result or minor abnormality, the physician may repeat the test to determine whether further follow-up is needed.[1] An HPV DNA test may also be performed at this time.

Many times, cell changes in the cervix go away without treatment. In some cases, doctors may prescribe estrogen cream for women who are near or past menopause. Because these cell changes are often caused by low hormone levels, applying an estrogen cream to the cervix for a few weeks can usually help to clarify the cause of the cell changes.[1]

Your doctor may also perform a colposcopy using an instrument much like a microscope (called a colposcope) to examine the vagina and the cervix. The colposcope does not enter the body. During a colposcopy, the doctor may coat the cervix with a dilute vinegar solution that causes abnormal areas to turn white. If the colposcopy finds abnormal tissue, the doctor may perform **endocervical curettage** or a **biopsy**. Biopsy is the removal of cells or tissues from the abnormal area for examination under a microscope. Endocervical curettage is a type of biopsy that involves scraping cells from inside the endocervical canal (the cavity running the length of the cervix) with a small spoon-shaped tool called a curette.[1]

"If the testing shows abnormal cells that have a high chance of becoming cancer, further treatment is needed. Without treatment, these cells may turn into invasive cancer. Treatment options include the following:

- **LEEP** (loop electrosurgical excision procedure) is surgery that uses an electrical current that is passed through a thin wire loop to act as a knife.
- **Cryotherapy** destroys abnormal tissue by freezing it.
- **Laser therapy** is the use of a narrow beam of intense light to destroy or remove abnormal cells.
- **Conization** removes a cone-shaped piece of tissue using a knife, a laser, or the LEEP technique."[1]

If the cells have already developed into invasive cervical cancer, discuss treatment options with your doctor. Treatment options may include:

- surgery (hysterectomy, which may involve removing the uterus, cervix, part of the vagina, and lymph nodes),
- radiation therapy (high-powered energy to kill cancer cells), and/or
- chemotherapy (strong anti-cancer medications to kill cancer cells).[2]

For more information on cervical cancer treatment, see Treatments and Drugs.

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